What is claimed is:

1. A Micro Electro-Mechanical System (MEMS) sensor device, comprising:

an elongated sensing element of substantially uniform thickness suspended for motion relative to a rotational axis offset between first and second ends thereof such that a first portion of the sensing element between the rotational axis and the first end is longer than a shorter second portion between the rotational axis and the second end;

one or more stationary substrates spaced away from the sensing element;

one or more capacitors formed by a surface of the substrate and each of the first and second portions of the sensing element; and

a valley formed in the substrate surface opposite from the first longer portion of the sensing element and spaced away from the rotational axis a distance substantially the same as the distance between the rotational axis and the second end of the sensing element.

2. The sensor device of claim 1 wherein a floor of the valley is spaced away from the longer first portion of the sensing element a distance that is greater than a capacitor gap formed by a surface of the substrate and the longer first portion of the sensing element.

3. The sensor device of claim 1 wherein the valley covers an area of the substrate surface substantially commensurate with a portion at the end of the longer first portion of the sensing element that is extended beyond the length of the shorter second portion.

4. The sensor device of claim 1 wherein the valley extends beyond the end of the longer first portion of the sensing element.

5. The sensor device of claim 1 wherein the valley extends on each side of the longer first portion of the sensing element.

6. The sensor device of claim 1 wherein a floor of the valley is spaced away from the longer first portion of the sensing element a distance on the order of approximately two or more times greater than spacing between the substrate and each of the first and second portions of the sensing element.

7. A sensor device fabricated according to Micro Electro-Mechanical System (MEMS) or High aspect ratio MEMS (HIMEMS), the sensor device comprising:

a silicon substrate having a substantially planar surface;

a pendulous sensing element of substantially constant cross-section suspended in close proximity to the substrate surface for motion relative to a rotational axis that is offset between a longer and a shorter portion of the pendulous sensing element with the longer and shorter portions of the pendulous sensing element forming different capacitors with respective first and second corresponding opposing portions of the substrate surface, the longer portion of the pendulous sensing element including a distal extended portion that is spaced away from the rotational axis at a distance that is substantially the same as the a length of the shorter portion measured between the rotational axis and a distal end thereof;

first and second gas damping gaps formed between respective the longer and shorter portions of the pendulous sensing element and the respective first and second corresponding opposing portions of the substrate surface; and

a third gap formed between the distal extended portion of the longer portion of the pendulous sensing element and an opposing third portion of the substrate surface corresponding thereto.

8. The sensor device of claim 7 wherein the first and second gas damping gaps are sized to space the longer and shorter portions of the pendulous sensing element from respective first and second corresponding opposing portions of the substrate surface for forming the different capacitors therebetween.

9. The sensor device of claim 8 wherein the third gap is deeper than the first and second gas damping gaps.

10. The sensor device of claim 9 wherein the third gap further comprises a valley formed in the third portion of the substrate surface corresponding to the distal extended portion of the longer portion of the pendulous sensing element.

11. The sensor device of claim 10 wherein the valley formed in the third portion of the substrate surface whereof the third gap is formed is further extended away from the

rotational axis beyond an end of the distal extended portion of the longer portion of the pendulous sensing element.

12. The sensor device of claim 10 wherein the valley formed in the third portion of the substrate surface whereof the third gap is formed is further extended to either side of the distal extended portion of the longer portion of the pendulous sensing element.

13. The sensor device of claim 10 wherein the valley formed in the third portion of the substrate surface whereof the third gap is formed is further extended both away from the rotational axis beyond an end of the distal extended portion of the longer portion of the pendulous sensing element and to both sides of the distal extended portion.

14. The sensor device of claim 9 wherein the pendulous sensing element further comprises a pendulous acceleration-sensing element.

15. The sensor device of claim 7, further comprising one or more flexures suspending the pendulous sensing element relative to the substrate surface for motion relative to the rotational axis, the one or more flexures being formed integrally with the pendulous sensing element and respective attachment points formed as mesas elevated above the substrate first and second surfaces opposing the longer and a shorter portion of the pendulous sensing element.

16. The sensor device of claim 7 wherein the third gap is at least significantly larger than the first and second gas damping gaps.

17. A method for forming a capacitive pick-off acceleration-sensing device, the method comprising:

operating a first etching process on a silicon substrate for:

i) releasing from a bulk portion of the substrate an elongated teeter-totter type sensing element having substantially planar and parallel surfaces spaced apart by a substantially uniform thickness of the substrate, and a first relatively longer and more massive sensing portion and a second relatively shorter and less massive sensing portion separated by one or more flexures positioned therebetween and arranged substantially crosswise to a longitudinal axis of the sensing element, the first relatively longer and more

massive sensing portion having a first sensing portion extended adjacent to the one or more flexures and a length substantially the same as a length of the second relatively shorter and less massive sensing portion and a second mass portion at distal end thereof extended at a length that is greater than the length of the second relatively shorter and less massive sensing portion,

ii) forming one or more mesas integral with the sensing element and supporting the one or more flexures at attachment points integral with the bulk portion of the substrate,

iii) forming first and second relatively narrow gas damping gaps between the bulk portion of the substrate and each of the first and second sensing portions of the teeter-totter type sensing element by forming first and second substantially planar surfaces on the bulk portion of the substrate spaced away a short distance from the respective first and second sensing portions of the sensing element; and

operating a second etching process on a silicon substrate for forming a gap relatively wider than the first and second relatively narrow gas damping gaps and positioned between the bulk portion of the substrate and the second mass portion at the distal end of the first relatively longer and more massive sensing portion of the sensing element.

18. The method of claim 17 wherein the second etching process is operated before the first second etch process.

19. The method of claim 17 wherein the first and second etching processes are operated according to conventional Micro Electro-Mechanical System (MEMS) techniques.

20. The method of claim 17 wherein the first and second etching processes are operated according to conventional High aspect ratio Micro Electro-Mechanical System (HIMEMS) techniques.